

## **CHAPTER 11**

### **HEALTH AND SAFETY**

The health and safety evaluation of the proposed Bulk Materials Processing Center (BMPC) use permit amendment changes and related actions (Project) is presented in this chapter. A variety of issues are addressed that relate to general health and safety issues as well as issues specific to Project activities.

#### **A. SETTING**

Current operations at the West Contra Costa Sanitary Landfill (WCCSL) include the Class II sanitary landfill; a waste shuttle facility; existing BMPC activities, which include wood recycling, composting, and asphalt/concrete processing; and various control systems. All operations are permitted and regulated by various permits and regulatory agencies. A closed Class I Hazardous Waste Management Facility (HWMF) is located adjacent to the Class II sanitary landfill. This chapter, however, addresses only the setting and potential impacts of the proposed Project.

##### **1. Fire Hazard Abatement**

The WCCSL is located within both the City of Richmond (City) and the unincorporated area of Contra Costa County (County) and is in the jurisdiction of the Richmond Fire Department (RFD). The RFD has a staff of 120 and provides fire fighting and prevention services to the incorporated areas of the City. The RFD also manages the West County Fire District, which serves San Pablo, El Sobrante, and unincorporated areas of Western Contra Costa County, including North Richmond. There are seven RFD stations in the City, five stations in neighboring communities, two companies in Chevron's refinery, and a Navy unit at Point Molate. Two fire stations are within the West County Fire District, that are administered by the RFD under contract.<sup>8</sup>

Station 62, located at 1065 7<sup>th</sup> Street, North Richmond, is the closest fire station to the WCCSL. The RFD estimates a 4-minute response time to an emergency at the WCCSL.<sup>33</sup> The second closest fire station is Station 70, located at 13928 San Pablo Avenue, San Pablo, and would respond within 5 minutes of an emergency at the WCCSL. An East Bay Municipal Utility District (EBMUD) water system hydrant is located one block off site near the intersection of Parr Boulevard and Garden Tract Road.<sup>1</sup> American Medical Response is the emergency ambulance service dispatched through RFD. The RFD has a hazardous materials team at Station 64, located at 4801 Bayview Avenue, Richmond. The RFD's estimated response time to a hazardous materials emergency at the WCCSL would be within 6 minutes.<sup>33</sup>

The WCCSL Emergency Response and Evaluation Plan is included in Appendix K of the Report of Disposal Site Information (RDSI).<sup>1</sup> Emergency fire control procedures are also included in the composting and wood waste recycling operations plans.

Pursuant to Title 27 of the California Code of Regulations (27 CCR) §20780, the Applicant is prepared to take the necessary measures for prompt fire control as required by local fire authorities (Figure 11-1). The landfill equipment operators have been trained in the methods of handling accidental fires on the active face of the landfill. Soil or other suitable cover material is stockpiled near the active face of the landfill for fire suppression. Water is available on site via two water trucks. A firebreak of cleared soil is maintained around the active faces of the landfill during the summer and fall fire hazard seasons, and defoliants (herbicides) are also sprayed along the gas and leachate lines. If smoldering wastes are received, they are deposited in a safe area and extinguished. Equipment operators have two-way radios to contact the landfill office. The weighmaster at the Landfill Office Building has a telephone available for contacting the local fire department or other emergency services.

Four fires have occurred at the WCCSL over the last two years. Fires in the green material and wood waste stockpiles occurred on August 26, 2001 (with a reoccurrence on August 28), and on September 22, 2002. On August 27, 2002, a small fire occurred at the landfill working face. In all cases, the specific causes of the fires were unknown, although the stockpiles fires could have resulted from spontaneous combustion or the careless discard of a cigarette. Appropriate procedures were followed and assistance from the local fire department was obtained for the stockpile fires. No injuries and only minor property damage occurred.<sup>53,54</sup>

## **2. Site Security**

The WCCSL security barrier is composed of gates and fencing and topographical barriers. The landfill site is bounded by water on three sides and the facility is fully fenced on the fourth side.

The main security gate is at the main entrance to the WCCSL. During the evening hours and for early morning access, the gate at the Richmond Sanitary Service (RSS) corporation yard is used. Contact must first be made with the RSS night watchman, who also maintains a security watch over the WCCSL property. Safety and security lighting is provided at the main gate and WCCSL scale facility.



**Figure 11-1 On-site Equipment.** On-site equipment at the Class II landfill is available for fire suppression if necessary.

### **3. Employee and User Safety**

The WCCSL has an established safety program that addresses employee and user safety. As indicated above, the WCCSL Emergency Response and Evacuation Plan has been prepared for the site and is included as Appendix K to the RDSI.<sup>1</sup> Main elements of the employee safety program include the following:

- Annual safety training and as needed.
- Use of safety equipment such as respirator masks and hearing protection devices.
- Daily inspections to identify and remediate any unsafe work practices.
- Use of safe working activities and practices, including methods for handling special waste.
- Provisions for necessary emergency response equipment such as a portable eyewash station and fire extinguishers located at appropriate locations.
- Backup alarms on all equipment used at the site.

Customer access is limited at the WCCSL. Once in the facility, appropriate signage and traffic spotters are used to restrict customers to designated unloading areas.

The Applicant (West County Landfill, Inc. [WCL]) was acquired by the national firm, Republic Services, Inc. (RSI) in mid-2001. One of the high-level activities at RSI facilities and operations is the expansion of safety training programs. As part of ongoing emphasis on safe work practices and in light of the recent increase in insurance costs, RSI and its affiliates expanded safety training programs in 2002. RSI signed a multi-year agreement with DuPont Safety Resources to assist in successfully completing the safety program initiative. This includes updating and upgrading existing safety training programs through more visible management commitment, setting aggressive safety goals and objectives, establishing high standards of performance, providing supportive safety personnel, conducting more effective two-way communication, and conducting safety audits.

### **4. Hazardous Waste**

No hazardous wastes are accepted at the WCCSL. Under State and Federal laws, the Class II landfill is permitted to accept non-hazardous wastes only. However, the municipal solid waste stream does contain small quantities of hazardous wastes that result from disposal of household waste and waste from small quantity generators, such as auto repair, auto dealers, and gas stations. Many of these materials are encountered on a day-to-day basis in the home and working environment and include such items as bleach, oven cleaners, hairspray, and antifreeze.

The occurrence of household hazardous waste (HHW) in the municipal solid waste stream is low, often comprising less than 0.5 percent in incoming waste.<sup>59</sup>

The Applicant has implemented a load-checking program at the WCCSL in accordance with 27 CCR §20870. Key elements of the hazardous waste screening program include the following:

- Signage at the landfill entrance prohibiting disposal of hazardous wastes.
- Initial load screening by gate attendants who are trained in hazardous waste recognition.
- Random inspection of packer trucks and roll-off box trucks.
- Monitoring of the wastes being unloaded.
- Storage of intercepted or recovered hazardous materials in labeled, lockable containers until pickup.
- Notification of the Local Enforcement Agency (LEA) of the identification, segregation, acceptance, and disposition of any unlawful delivery of hazardous materials identified through the load-check program. Any such items are handled and disposed of by trained personnel in accordance with applicable laws and regulations.

## 5. Landfill Gas

Landfill gas (LFG) is a gas produced from a landfill during the anaerobic (without oxygen) decomposition of organic materials. LFG typically contains 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and small percentages of trace gases. If not controlled, LFG can represent a significant fire and worker/customer safety hazard at a landfill.

**a. Composition.** The methane gas component of LFG is explosive in the 5 to 15 percent range of concentrations when confined in a closed space with sufficient oxygen for burning. Methane may also asphyxiate vegetation through oxygen starvation in the root zone. In confined or semi-confined enclosures, methane gas and carbon dioxide may accumulate and create an asphyxiation hazard through displacement of oxygen. Also, carbon dioxide, the second most abundant component of LFG, may impact vegetation through chlorosis, or yellowing, of specific plant types. Carbon dioxide may also cause groundwater quality impairment by increasing the groundwater acidity. This promotes chemical solubilization of minerals and increases the hardness of the water.

The methane component of the LFG generated at municipal waste landfills is about one-half as dense as natural soil air. Thus, the methane in LFG tends to migrate upwards

through the landfill cover or, if the surface is poorly permeable, laterally to the edges of the filled area. Venting of the methane and lighter LFGs to the atmosphere can occur at the fill perimeter where settlement cracks and “scarps” may create a break in the integrity of the final surface cover. LFG also may be forced out the sides of a landfill into and through adjacent, more permeable soil/rock units if the landfill liner has ruptured or was improperly constructed.

**b. Control and Monitoring.** The Class II landfill, as well as the closed Class I HWMF, have collection and recovery systems for LFG control. The systems include a combination of vertical and horizontal wells and collection piping, which convey the Class II LFG to an on-site power plant in WCCSL Area A. Although a passive LFG control system was originally anticipated for the Class I HWMF, the Applicant is currently discussing alternatives with the Bay Area Air Quality Management District (BAAQMD), including (1) combustion of the HWMF LFG in the on-site power plant with the Class II LFG; (2) use of the existing LFG flare; and (3) installation of another LFG flare for the HWMF, with additional gas provided from the Class II system to assure proper combustion conditions.<sup>125</sup>

As will be discussed in Section B, regulatory requirements exist in 27 CCR for the control and monitoring of LFG. Because of topographical restrictions, such as being bounded by water on three sides, the WCCSL LFG monitoring program includes four wells at the southeast corner of the property on a quarterly basis. To date, LFG has not been detected in wells outside the surrounding slurry wall.<sup>55</sup>

Two structures within the WCCSL have been the focus of LFG control and monitoring efforts, because they were intended to be on the Class II landfill after closure.<sup>1</sup> These buildings include the following:

- **Soil Remediation Building.** This facility is now inactive and is the proposed location for the Waste Recycling Center (WRC). Controls at this location include gas collection pipes adjacent to the site, and the building with a subfloor ventilation space beneath the office area and with a synthetic fabric liner underneath the soil storage building floor. LFG monitoring at this building continues but LFG has not been detected.<sup>55</sup>
- **Landfill Equipment Maintenance Building.** This building was constructed with perforated drain (vent) pipes placed in the gravel blanket underlying the building slabs. The drain pipes are used for monitoring for LFG occurrence and can be used in a gas migration control system. Similarly, no LFG has been detected at this location.<sup>55</sup>

## 6. Vectors and Nuisance Pests

Solid waste facilities have the potential to provide food, cover, and breeding ground for disease vectors (a vector is an organism that carries pathogens from one host to another) such as certain insects (e.g., flies and mosquitoes) and nuisance pests such as gulls.

Local agency requirements and State regulations require the Applicant to take the necessary steps prevent or control the propagation, harborage, or attraction of flies, rodents or other vectors, and minimize bird problems. The routine crushing, compaction, and covering of the wastes effectively eliminates the potential for insect and rodent problems which can be vectors of disease transmission. Noise-nuisance control techniques are used for gulls at the WCCSL.

The LEA regularly inspects WCCSL operations, including for vector and nuisance pest control. Over the last two years, the LEA has issued only one Area of Concern (AOC) for vectors and nuisance pests at the WCCSL.<sup>47</sup> In early January 2001, an unusually large number of gulls were present at the WCSL and no bird deterrent measures were being used. Otherwise relative to vector and nuisance pest control, WCCSL operations have been in compliance with LEA requirements and Solid Waste Facility Permit (SWFP) No. 07-AA-001 and Composting Facility Permit No. 07-AA-0044.

## **B. REGULATORY AND PLANNING FRAMEWORK**

This chapter addresses a range of issues related to health and safety. Accordingly, the regulatory and planning framework is extensive. An overview is provided below by subject matter. Relevant information is included from the CCR, the County and City Use Permits, and the Code of Federal Regulations (CFR).

### **1. Fire Hazard**

- 14 CCR §17867b(1): The operator of a composting facility shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. A fire lane of a minimum of 12 feet in width shall be provided to allow access to all operation areas.
- 14 CCR §17407.1: (a) If burning wastes are received at a transfer/processing facility, they shall be separated from other wastes and deposited in a safe area, spread and extinguished, and (b) open burning of solid waste . . . except as otherwise approved by the LEA, local air district, and location fire department, is prohibited.
- 27 CCR §20780: (a) Open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations, is prohibited at all solid waste landfills; and (b) If burning wastes are received, they shall be deposited in a safe

area and extinguished. If burning wastes have been placed in an active face, they shall be immediately excavated, spread and extinguished.

- Implement requirements of the Richmond Fire Department.

## **2. Site Security**

- 14 CCR §17867a(5): Requires that unauthorized human or animal access be prevented.
- 14 CCR §17418.1: Requires a transfer/processing facility to be designed to discourage unauthorized access by persons or vehicles through the use of either a perimeter barrier or topographic constraint.
- 27 CCR §20530: A landfill site shall be designed to discourage unauthorized access by persons and vehicles by using a perimeter berm or topographic constraint. The LEA may require other areas of the site to be fenced to create an appropriate level of security.
- County and City use permits for the BMPC require adequate site security measures consistent with State requirements.

## **3. Employee and User Safety**

- 14 CCR §17867a(6): Provides that traffic flow into, within, and out of the composting operation or facility shall be controlled in a safe manner.
- 14 CCR §17868: Details the environmental health standards for all composting operations relative to sampling, maximum metal concentrations, pathogen reduction, and clean green material processing requirements.
- 14 CCR §17408.7: Requires that an Injury, Illness, and Prevention Program be prepared for transfer and processing facilities and made available for local and State inspectors.
- 14 CCR §17408.8: Requires that a transfer and processing facility be designed, operated, and maintained to minimize contact between the public and solid waste.
- 14 CCR §17410.3: Provides for adequate training of transfer and processing facility personnel.
- 27 CCR §20590: Requires landfill operation and maintenance personnel to use appropriate safety equipment.



- 27 CCR §21130: Requires the landfill operator to maintain a written postclosure emergency response plan. The plan is required to identify and describe procedures to minimize hazards to protect public health and safety.
- County and City use permits require the Applicant to have an approved public health and safety plan and to comply with all design measures, safety precautions, and emergency response procedures as required by Federal, State, and local agencies.

#### **4. Hazardous Wastes**

- 14 CCR §17409.5 and 27 CCR §20870: Requires a load-checking program be implemented at material recovery facilities (MRFs) and landfills to assure that any discharge of unacceptable materials is minimized.
- County and City use permits for the BMPC require the Applicant to implement a program for checking loads at the WCCSL/BMPC gatehouse for smoldering loads, hazardous and other ineligible wastes, and implement appropriate procedures for their handling and disposal.

#### **5. Landfill Gas**

- 27 CCR §20919: Where the LEA, the local fire control authority, or the California Integrated Waste Management Board (CIWMB) have cause to believe a hazard or nuisance may be created by landfill decomposition gases, they shall so notify the owner. Thereafter, the site owner shall cause the site to be monitored for presence and movement of gases and shall take necessary action to control such gases.
- 27 CCR §20921: (1) The concentration of methane gas must not exceed 1.25 percent by volume in air within on-site structures; (2) The concentration of methane gas migrating from the landfill must not exceed 5 percent by volume in air at the facility property boundary or an alternative property boundary consistent with 27 CCR §20923; and (3) Trace gases shall be controlled to prevent adverse, acute, and chronic exposure to toxic or carcinogenic compounds, or both. The program implemented pursuant to 27 CCR §20921 shall continue for a period of 30 years or until the operator receives written authorization to discontinue by the LEA and the CIWMB.

## 6. Composting

Also see additional composting requirements in sections related to Fire Hazard and Employee and User Safety.

- 14 CCR §17867: General Operating Standards

(a)(2)—All composting activities shall be conducted in a manner that minimizes vectors . . . hazards . . . human contact with, inhalation, congestion and transportation of dust, particulates, and pathogen organisms.

(a)(3)—Random load checks of feedstock, additives, and amendments for contaminants shall be conducted.

(b)(1)—The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. A fire lane of a minimum of 12 feet shall be provided to allow access to all operations areas.

- 14 CCR §17868.2: Maximum Pollutant Concentrations

Compost that contains any pollutant in amounts that exceed acceptable pollutant concentrations in Table 11-1 shall be designated for disposal, additional processing, or other use as approved by State or Federal agencies having appropriate jurisdiction.

**Table 11-1. Compost Maximum Pollutant Concentrations**

Pollutant	Concentration (mg/kg) on dry weight basis
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2800

Source: 14CCR §17868.2

■ 14 CCR §17868.3: Pathogen Reduction

(b)(1)—The density of fecal coliform in compost, that is or has at one time been active compost, shall be less than 1,000 Most Probable Number (MPN) per gram of total solids (dry weight basis) or the density of *Salmonella* bacteria in compost shall be less than three (3) MPN per four (4) grams of total solids (dry weight basis).

(b)(3)—For the windrow composting process, active compost shall be maintained under aerobic conditions at a temperature of 131 degrees Fahrenheit or higher for a pathogen reduction period of 15 days or longer. During the period when the compost is maintained at 131 degrees Fahrenheit or higher, there shall be a minimum of five (5) turnings of the windrow.

(d)(1)—Each day during the pathogen reduction period, at least one temperature reading shall be taken per 150 feet of windrow, or fraction thereof, or for every 200 cubic yards of active compost, or fraction thereof.

(d)(2)(A)—Windrow composting process shall be monitored twelve (12) to twenty-four (24) inches below the pile surface.

■ 14 CCR §17868.1: Sampling Requirements

All composting operations that sell or give away greater than 2,500 cubic yards of compost annually, and all facilities shall meet the following requirements:

(a) Operators shall verify that compost meets the maximum acceptable pollutant concentration limits specified in §17868.2 and pathogen reduction requirements specified in §17868.3. Verification of pathogen reduction requirements shall occur as close as possible to the point at which compost is sold and removed from the site, bagged for sale, given away for beneficial use and removed from the site, or otherwise beneficially used. This verification shall be performed by taking and analyzing at least one composite sample of compost, following the requirements of this Section as follows:

- (1) An operator who composts green material, or mixed solid waste shall take and analyze one composite sample for every 5,000 cubic yards of compost produced.
- (2) An operator who composts sewage sludge shall meet the sampling schedule in Table 11-2.

**Table 11-2. Frequencies of Compost Sampling for Sewage Sludge Composting Facilities**

Amount of sewage sludge compost feedstock (metric tons per 365 day period)	Frequency
Greater than zero, but fewer than 290	Annually
Equal to or greater than 290 but fewer than 1,500	Quarterly
Equal to or greater than 1,500 but fewer than 15,000	Bi-monthly
Equal to or greater than 15,000	Monthly

Source: 14CCR §17868.1

## **7. Land Application of Biosolids**

The proposed Project includes use of biosolids from the West County Wastewater District (WCWD) treatment plant at the WCCSL for:

- Spreading or spraying liquid biosolids with greater than 90 percent moisture on the southern and eastern landfill sideslopes for drying, involving multiple applications per year.
- Spreading of biosolids with less than 90 percent moisture on the southern and eastern sideslopes for drying and for building up the cap thickness through sequential applications per season.
- Incorporation of biosolids into the composting process.
- Blending of dried biosolids with soil at the Soil Reclamation Facility to create specified fortified soil product.

Figure 11-2 shows the sideslope areas of the Class II landfill where biosolids would be applied. A host of regulations apply to biosolids handling and its land application. Land application is defined as the distribution of biosolids on, or just below, the surface of the land to improve the soil characteristics for plant growth.

**a. Pollutant Concentration Limits.** Biosolids land application is regulated at the Federal level by the EPA through the 40 CFR Part 503 regulations. The 40 CFR 503 regulations establish standards to protect public health and the environment from adverse effects that may result from the land application of biosolids.



**Figure 11-2 Land Application of Biosolids. The application of biosolids to landfill side slopes shown here is subject to Federal and State regulations.**

The 40 CFR 503 regulations establish standards for pollutant limits, operational standards, management practices, and monitoring, recordkeeping, and reporting requirements. The 40 CFR 503 regulations are self-implementing and impose requirements on the generators and persons who further treat, distribute, or use the biosolids. Persons not complying with the requirements are in violation of the 40 CFR 503 regulations and can be subject to enforcement action from the EPA. Compliance with the 40 CFR 503 regulations was required by February 19, 1994.

The 40 CFR 503 regulations have established limits for ten pollutants as listed in Table 11-3 for land application of biosolids. Biosolids with pollutant levels greater than the Ceiling Concentrations cannot be applied to land. Biosolids with pollutant levels below the Ceiling Concentration, but above the Pollutant Concentration can be applied to land, but are subject to the annual and cumulative pollutant loadings in the 40 CFR 503 regulations. Biosolids with pollutant levels below Pollutant Concentration can be applied to land without regard to annual or cumulative loading restrictions.

**Table 11-3. EPA 40 CFR 503 Pollutant Concentration Limits**

Pollutant	503.13 Table 1 Ceiling Concentrations (mg/kg) <sup>a</sup>	503.13 Table 3 Pollutant Concentrations (mg/kg) <sup>a</sup>
Arsenic	75	41
Cadmium	85	39
Chromium	3,000	1,200
Copper	4,300	1,500
Lead	840	300
Mercury	57	17
Molybdenum	75	N/A <sup>b</sup>
Nickel	420	420
Selenium	100	36
Zinc	7,500	2,800

Notes:

a. Dry weight basis

b. Temporarily suspended by EPA pending further consideration. Value was 18 mg/kg.

Source: 40 CFR Part 503

**b. Pathogen Reduction.** In addition to pollutant concentrations, biosolids must not pose a public health risk from pathogens. The 40 CFR 503 regulations therefore stipulate that biosolids applied to land must be treated to reduce pathogens. The 40 CFR 503 regulations give both performance-based standards and technology-based standards for methods to reduce pathogens.

The 40 CFR 503 regulations identify two levels of pathogen reduction requirements, Class A and Class B, which may be satisfied by certain treatment methods and/or by meeting pathogen limitation standards. The goal of Class A requirements is to reduce pathogens to below detectable limits. Class B biosolids meet adequate pathogen reduction requirements but rely upon environmental factors at the use or disposal site to further reduce pathogens. Therefore,

sites that use Class B biosolids must follow additional site restrictions and management practices concerning public access, animal grazing, and crop harvesting.

The WCWD treatment plant currently produces Class B biosolids through the anaerobic digestion process. Windrow composting such as included in the proposed Project is a Part 503-defined process to further reduce pathogens (PFRP). It would produce a Class A material that would be considered pathogen free, providing the temperature of the biosolids in the windrows is maintained at 131 degrees Fahrenheit (55 degrees Celsius) or higher for 15 days or longer as required by 14 CCR §17868.3(b)(3). During the period when the compost is maintained at 131 degrees Fahrenheit or higher, there should be a minimum of five turnings of the windrow. There are other defined processes that can be used to achieve Class A biosolids. These include: heat drying, pasteurization, and high pH/high temperature methods. Even unusual methods such as long-term storage in sludge lagoons or thermophilic digestion could be used to achieve Class A biosolids through certain specific operational methodologies, if approved by regulatory authorities.

**c. Biosolids Non-Hazardous Classification.** The 40 CFR 503 regulations require that biosolids applied to land be non-hazardous. Federal regulations that address waste classification are found in 40 CFR Part 261, which characterizes a material to be hazardous if it exhibits any one of the following four characteristics: ignitability, corrosivity, reactivity, and toxicity. Biosolids are generally not ignitable, corrosive, or reactive. The most critical criterion for biosolids is toxicity, as defined by the Toxicity Characteristic Leaching Procedure (TCLP). This test includes 40 compounds consisting primarily of organics.

The State of California also references the Federal regulations in classifying biosolids and has additional and more restrictive tests to characterize biosolids. In California, the CCR Title 22, Division 4.5, Chapter 11, Article 3 (22 CCR) describes characteristics of hazardous wastes and provides means of testing whether a material is hazardous. Similar to the Federal regulations, biosolids are considered hazardous by California standards if they exhibit any one of the four characteristics: ignitability, corrosivity, reactivity, and toxicity. Under 22 CCR, the toxicity of a material may be tested by several methods including the TCLP (consistent with the Federal regulations), the Total Threshold Limit Concentration (TTLC) test, and the Soluble Threshold Limit Concentration (STLC) test.

**d. Vector Attraction Reduction.** Vector attraction is any characteristic or project activity that attracts disease vectors. Disease vectors are insects or animals that are capable of transporting and transmitting infectious agents. Some common vectors include flies, mosquitoes, and rodents. Their interaction with humans provides a pathway for transmission of disease. Vectors themselves are not pathogenic. The 40 CFR 503 regulations specify options for meeting the vector attraction reduction related to biosolids as shown in Table 11-4. The WCWD plant would normally meet Option 1—38 percent volatile solids reduction—in its anaerobic digesters as part of its normal treatment process.

**Table 11-4. 40 CFR 503 Vector Attraction Reduction Requirements**

Option	Process
(1)	The mass of volatile solids in the biosolids shall be reduced by a minimum of 38 percent during biosolids treatment.
(2)	When the 38 percent volatile solids reduction requirement cannot be met for an anaerobically digested biosolids, vector attraction reduction can be demonstrated by digesting a portion of the previously digested biosolids anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 86 to 99 degrees Fahrenheit (30 and 37 degrees Celsius). When, at the end of the 40 days, the volatile solids in the biosolids at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.
(3)	When the 38 percent volatile solids reduction requirement cannot be met for an anaerobically digested biosolids, vector attraction reduction can be demonstrated by digesting a portion of the previously digested biosolids that has a percent solids of 2 percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 68 degrees Fahrenheit (20 degrees Celsius). When, at the end of the 30 days, the volatile solids in the biosolids at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.
(4)	The specific oxygen uptake rate (SOUR) for biosolids treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 68 degrees Fahrenheit (20 degrees Celsius).
(5)	Biosolids shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the biosolids shall be higher than 40 degrees Celsius and the average temperature of the biosolids shall be higher than 113 degrees Fahrenheit (45 degrees Celsius).
(6)	The pH of biosolids shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 hours and then at 11.5 or higher for an additional 22 hours at 77 degrees Fahrenheit (25 degrees Celsius).
(7)	The percent solids of biosolids that does not contain unstabilized solids shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.
(8)	The percent solids of biosolids that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.
(9)	Biosolids shall be injected below the surface of the land. No significant amount of the biosolids shall be present on the land surface within 1 hour after the biosolids are injected. When the biosolids that are incorporated into the soil are Class A with respect to pathogens, the biosolids shall be injected below the land surface within 8 hours after being discharged from the pathogen treatment process.
(10)	Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within 6 hours after application to or placement on the land. When biosolids that are incorporated into the soil are Class A with respect to pathogens, the biosolids shall be applied to or placed on the land within 8 hours after being discharged from the pathogen treatment process.
(11)	Biosolids placed on a surface disposal site shall be covered with soil or other material at the end of each operating day.
(12)	The pH of domestic septage shall be raised by 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes at 77 degrees Fahrenheit (25 degrees Celsius).

Source: 40 CFR, Part 503.



- 14 CCR §17867. All composting facilities shall be conducted in a manner that minimizes vectors, odor impacts, litter, hazards, nuisances, and noise impacts, and minimizes human contact with inhalation, ingestion, and transportation of dust, particulates, and pathogenic organisms.
- 14 CCR §17408.5. Each transfer/processing facility and operation shall be conducted and maintained to prevent the creation of a nuisance.
- 14 CCR §17410.4. The operator shall take adequate steps to control or prevent the propagation, harborage, and attraction of flies, rodents, or other vectors, and animals, to minimize bird attraction.
- 27 CCR §20680. Except as otherwise provided, the owners or operators of all municipal solid waste landfill units shall cover disposed solid waste with a minimum of 6 inches of compacted earthen material or Alternative Daily Cover at the end of each operating day, or at more frequent intervals if necessary, to control vectors, fires, odors, blowing litter, and scavenging.
- 27 CCR §20810. The operator shall take adequate steps to control or prevent propagation, harborage or attraction of flies, rodents, or other vectors, and to minimize bird problems.
- The LEA has broad authority through the SWFPs and Composting Facility Permit to require operational changes at the proposed WRC and Class II landfill to correct any problems associated with vectors and nuisance pests.
- County and City use permits require the Applicant to have an approved Vector Control Program implemented at the BMPC.
- The Contra Costa Mosquito and Vector Abatement District has abatement powers and is authorized to take all necessary or proper steps for the control of mosquitoes, flies, or other vectors.

### **C. SIGNIFICANCE CRITERIA**

Appendix G of the California Environmental Quality Act (CEQA) Guidelines indicates a project will normally have a significant effect on health and safety if it will:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

#### **D. IMPACTS AND MITIGATION MEASURES**

Potential health and safety impacts of the proposed Project and recommended mitigation measures are discussed in this section.

##### **1. Impacts Considered not to be Significant**

Significance criteria applicable to health and safety impacts are discussed in Section C. Criteria which are not applicable include the following:

- Emit hazardous emission or handle hazardous wastes within one-quarter mile of a school.
- Result in a safety hazard for a project located within an airport land use plan or within the vicinity of a private airstrip.

Additionally, the Project would not interfere with an adopted emergency response plan or evacuation plan.

## 2. General Health and Safety

**IMPACT 11-1. Increases in the volume of incoming waste stream along with expanded recycling and solid waste disposal activities on site could expose employees and users to increased hazards associated with exposure to the materials and the equipment used for its processing. This impact is considered to be less than significant.**

Under the proposed Project, existing waste streams would be increased, new materials would be added, and site recycling and disposal operations would expand. With an increased waste stream, increased amounts of HHW may be present. Examples of new materials and operations include new composting facility feedstocks, the new wet/dusty material blending activity, soil reclamation, and biosolids/dredged material spreading. The use of mobile and stationary material sorting and handling equipment such as shears, shredders, flatteners, conveyor belts, skip loaders, and forklift trucks under conditions of increased traffic and confined space present potential health and safety problems.

### **Control Measures Incorporated by Applicant:**

- a) The existing WCCSL Public Health and Safety Plan required pursuant to County and City use permits would be modified, amended permits sought, and permit conditions followed.
- b) The requirements of the RFD, building codes, and CAL/OSHA would be incorporated into the design, construction and operation of new facilities.
- c) Formal training of personnel would continue to be conducted that includes the proper use of facility equipment; identification, avoidance and reporting of conditions that could potentially compromise safety; identification and management of HHW; regular safety meetings; and annual review and refresher training to ensure continued safe operation and compliance with regulations.
- d) Users of the facility would be restricted to designated areas for unloading and loading of materials through the use of temporary barriers, signage, and staff. Restricted areas or areas of potential risk would be off limits to the general public.
- e) Workers would be equipped with the appropriate safety clothing. Safety equipment would be readily available for all site personnel.
- f) The hazardous waste screening program in place at the WCCSL and BMPC facilities would be continued.

Implementation of the Applicant's control measures would reduce general health and safety impacts to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-1.** None required.

**3. Facility Siting**

**IMPACT 11-2.** The proposed Project would be located within the WCCSL, adjacent to the closed Class I HWMF, which is a hazardous materials site and could create a significant hazard to the public and environment. This impact is considered to be less than significant.

The Class I HWMF has been closed pursuant to State and Federal regulations. The HWMF is a totally enclosed facility with required environmental control systems. The Applicant would continue existing practices of incorporating biosolids (up to 85 percent moisture content) into the HWMF final cap for enhancement of the soils. Project activities would not encroach upon the HWMF site.

**Control Measures Incorporated by Applicant:** None.

**EIR Recommendations:**

**MITIGATION MEASURE 11-2:** None required

**4. Spills**

**IMPACT 11-3.** Project construction and operation could result in the accidental spillage of diesel fuel and other chemicals at the site, which could impact public safety and the environment. This impact is considered to be less than significant.

The Applicant has a spill control contingency plan, which is included in the WCCSL Emergency Response and Evacuation Plan as Appendix K to the RDSI.<sup>1</sup> Equipment available for use in containing and cleaning up spilled hazardous materials or wastes at the WCCSL consists of ten mobile pumps and nine tractors. The mobile pumps are used for large spills. The tractors can be used to excavate contaminated soil and materials. Spill cleanup kits are located at each hazardous waste storage area. These kits contain absorbent pillows, pads and booms or granular absorbent, appropriate hazardous waste labels, plastic collection bags and sealing ties, poly laminated Tyvek coveralls and boot covers, green nitrile gloves, latex gloves, splash gloves and caution barricade tape.

The following is the WCCSL policy on the subject of accidental spillage of diesel fuel and other chemicals at the site. The policy is based upon (1) the criteria identified in Federal release reporting under the Emergency Planning and Community Right-to-Know

Act (EPCRA), and (2) the California Office of Emergency Services (OES) policy on hazardous material releases.

“Federal release reporting under EPCRA and previous Federal law is based on reporting an incident when the reportable quantity or “RQ” is exceeded within a specified period of time and chemical listed in 40 CFR 302.4 and 355.40, or a petroleum or petroleum product release exceeds 40 gallons.

Title 22 CCR §66265.50, California Health and Safety Code §25500, and the regulatory clarification issued by OES have established that reporting is required immediately of any release of hazardous materials, except when there is a reasonable belief by the person required to report that there is no present or potential hazard to human health, the environment or property. This criterion has been adopted by the OES in Regulation 19 CCR §2703.”

Existing precautions and procedures to contain spills are adequate for the potential on-site risks.

**Control Measures Incorporated by Applicant:** None.

**EIR Recommendations:**

**MITIGATION MEASURE 11-3:** None required

## 5. Landfill Gas Migration

**IMPACT 11-4. LFG contains methane, which is explosive in the 5 to 15 percent range under conditions of confined space with sufficient oxygen for combustion. This impact is considered to be less than significant.**

There are several systems and components of the Project and existing LFG control that serve to reduce the potential impacts of LFG at the WCCSL. The Class II LFG collection and recovery system and existing LFG monitoring program will continue to operate during the landfill’s postclosure period (estimated to be 30 years). Many of the Project activities would occur on the landfill’s central plateau, which will have a 4-foot-thick final cap with an additional 3 feet of soil to protect the final cap. Thus, vertical migration of LFG should be effectively controlled in these areas.

As described in Chapter 3 (Figure 3-4), the Project would involve construction or expansion of the following buildings:

- Waste Recycling Center (WRC). The WRC is proposed to be sited in the former Soil Remediation Building with rehabilitation and expansion of that structure.
- A new 1,200-square-foot modular employee break building would also be added adjoining the WRC structure.
- Concrete Debris Recycling Office Trailer. This would be a 15-foot by 40-foot wood-sided construction trailer on wheels or stilts for on-site office use to be located in the concrete/asphalt area or the landfill's central plateau.
- Relocated Equipment Maintenance Building. This approximately 60-foot by 80-foot metal-sided, pre-engineered building would be located in WCCSL Area A.

There should not be a significant increase in risks from LFG migration at the relocated equipment office building and the concrete/asphalt recycling office. This is because existing Area A buildings are not included in the WCCSL LFG monitoring program because they are not located on solid waste fill and the closed HWMF with associated soil attapulgate slurry wall lies between the Class II landfill and these buildings. Thus, LFG is not anticipated to migrate to this area. In addition, the concrete/asphalt office would be located on a 7-foot-thick final landfill cap and protective soil layer, would be elevated, and there would not be any subsurface electrical hookups.

The former Soil Remediation Building was originally constructed with LFG controls as discussed in Section A5. LFG collection pipes were also installed adjacent to the building. The structure itself was constructed with a subfloor ventilation space beneath the soil remediation facility's office building and with a synthetic impervious fabric liner underneath the soil storage building floor. LFG monitoring at the facility continues to be conducted by the Applicant, even though the facility is out of service and no occurrences of LFG at that location have been detected.

#### **Control Measures Incorporated by Applicant:**

- a) The WRC building expansion would be constructed with the necessary LFG controls consistent with the requirements of the LEA and the RFD, and the facility would continue to be included in the WCCSL LFG monitoring program.
- b) Ongoing monitoring of the landfill cover integrity would be conducted and necessary repairs made to control LFG venting.

The Applicant's control measures would reduce health and safety impacts associated with LFG migration to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-4:** None required.

**6. Fire Hazards**

**IMPACT 11-5. The receipt, processing and disposal of solid waste materials has the potential to create a fire hazard with associated health and safety impacts. This impact is considered to be less than significant.**

There are components of the Project that do not have a substantial fire hazard risk, although lesser events such as equipment fires may occasionally occur. Project activities that do not have a substantial fire hazard risk include concrete/asphalt processing, wet/dusty material blending, soil reclamation, biosolids/dredged material spreading, and the Public Access Trail (Trail).

**Compost and Wood Waste Recovery Facilities.** Both of these facilities involve processing and storage of combustible materials. The Wood Waste Recovery Facility located in the Organics Materials Processing Area, adjacent to the composting area, is primarily a stockpiling and loadout operation (Figure 11-3). Operations involve receiving tree branches, woody vegetation materials, and selected wooden construction debris that is shredded and possibly screened. Products of this operation would be used either as boiler fuel or as landscaping and erosion control mulch. Temporary storage of these materials would be necessary. Sources of fire hazard include an ignition source such as a cigarette or equipment fire, spontaneous combustion from extended storage, or the accidental deposition of a “hot load.”

The Composting Facility involves placement of shredded materials from the Organics Materials Processing Area into windrows for a period of 8 to 12 weeks. The windrows are anticipated to be 14 to 18 feet wide at the base and 6 to 8 feet high (10 feet maximum). Then, composted materials are mechanically processed through a variety of screens, trommels, conveyors, blenders, baggers, colorizers, or mixers and stockpiled prior to being sold. During composting, if the compost material dries out and becomes too hot, there is a potential for spontaneous combustion to occur. Organic material can ignite spontaneously at a moisture content of between 25 and 45 percent. This is unlikely, however, unless the material reaches temperatures higher than 199 degrees Fahrenheit (93 degrees Celsius), which typically requires a pile over 12 feet high. Limiting the windrows to a maximum height of 10 feet and turning the compost when temperatures exceed 140 degrees Fahrenheit (60 degrees Celsius) will prevent fires.<sup>49</sup>



**Figure 11-3 Wood Waste Recovery Facility. Stockpiling wood waste materials is a potential fire hazard but compliance with Richmond Fire Department requirements would mitigate this impact.**



According to the Applicant's RCSI, fire control would be accomplished through use of good operating practices, firebreaks, and emergency water supply.<sup>1</sup> Compost windrows would be separated by a 12-foot-wide fire lane, have a 10-foot maximum height, monitored for temperature and moisture, and turned and sprayed with water to control composting temperatures. Other fire control features include the presence of fire extinguishers, smoking prohibitions, a water truck, an ongoing inspection program for conditions that could create a fire hazard, limiting the depth of green materials and wood waste storage piles to 20 feet, and the use of on-site equipment to extinguish a fire if it occurs.

**Waste Recycling Center.** The mixed waste processing area within the WRC also presents a fire hazard risk. A fire resulting from the use of heavy equipment and the processing of mixed solid waste could occur. Ignition sources include cigarettes, the equipment, or the accidental disposal of "hot loads." Key fire control features of the WRC include installation of a fire sprinkler system in the main processing building and trailer loadout areas with hose and nozzles stationed at key locations, presence of fire extinguishers and a water truck, prohibition of smoking, an ongoing inspection program for conditions that could create a fire hazard, and use of personnel trained in fire control techniques.

**Landfill Height Increase.** The proposed landfill height increase would provide several years of additional disposal capacity, so filling operations would continue. Fires that may start at landfills are typically small and of short duration, and usually limited to the working face and tipping area. The potential of subsurface combustion of buried refuse triggered by accidental burial of "hot loads," uncontrolled or improper operation of the LFG control system (not proposed by the Applicant), or inadvertent burial of chemical wastes is also a possibility. Refuse inside a truck being transported to the WCCSL can also catch fire. The Applicant would continue to utilize proven, effective fire control and suppression procedures that are currently in use at the landfill.

#### **Control Measures Incorporated by Applicant:**

- a) A Fire Protection Component for the WRC meeting the requirements of the RFD and the LEA to contain and extinguish fires originating at the facility would be developed and implemented. The program would be subject to the approval of the RFD and the LEA and would address, but not be limited to, the following:
  - Fire protection and suppression measures, including fire sprinkler system with hose and nozzles stationed at key locations, for the facility.
  - Fire breaks and access roads.
  - Fire extinguisher types and locations.
  - Machinery and equipment inspection program.

- Household hazardous waste facilities specifications to meet fire and safety codes due to temporary storage of intercepted household hazardous waste.
  - Fire control training of employees.
  - Federal OSHA employee training requirements for handling of hazardous materials/waste.
  - Self-enforcement of the smoking prohibition by facility personnel and customers.
  - Water truck.
- b) The existing Fire Protection Component for the Composting Facility would be revised as necessary under the review and oversight of the local fire districts and the LEA. The Fire Protection Component addresses the following:
- Use of good operating practices, fire breaks, and emergency water supply.
  - Compost windrows would be separated by a 12-foot-wide fire lane, have a 10-foot maximum height, monitored for temperature and moisture, and sprayed with water to control composting temperatures.
  - Presence of fire extinguishers, smoking prohibitions, a water truck, an ongoing inspection program for conditions that could create a fire hazard, and limiting the depth of green materials and wood waste storage piles to 20 feet.
  - Use of on-site equipment to extinguish a fire if it occurs.
- c) All required permits from the RFD would be obtained and the Applicant would comply with permit conditions.
- d) Necessary measures at the landfill would be taken for prompt fire control at the landfill, including use of heavy equipment, stockpiled soil, and water suppression.
- e) Any incoming burning wastes would be deposited in a safe area and extinguished pursuant to 27 CCR §20780.
- f) The WCCSL Emergency Response and Evacuation Plan would be implemented as necessary.

Implementation of the Applicant's control measures, which includes conformance with the requirements of the RFD, would reduce impacts to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-5:** None required.

**7. Bioaerosols**

**IMPACT 11-6. The generation of bioaerosols and endotoxins during the composting process can create health and safety issues for employees and users of the facility. This impact is considered to be less than significant.**

Bioaerosols are suspensions of particles in air consisting partially or wholly of microorganisms. A variety of bioaerosols can be generated during composting. Both outdoor and indoor air in the natural environment contain all of the microorganisms, in variable amounts, that are associated with composting.<sup>123</sup> The bioaerosols of concern include actinomycetes, bacteria, viruses, molds and fungi. *Aspergillus fumigatus* is a common fungus that is naturally present in decaying organic matter. Both outdoor and indoor air in the natural environment contain all of the microorganisms, in variable amounts, that are associated with composting.<sup>123</sup> The spores of this fungus can be inhaled or can enter the body through cuts and abrasions in the skin. Although the fungus is not considered a hazard to healthy individuals, it can, in susceptible individuals, inhabit the lungs and produce fungal infections. *Aspergillus fumigatus* is readily dispersed from dry and dusty compost piles during and after mechanical agitation. However, it is documented that levels of this fungus decrease rapidly only a short distance from the source or a short time after activity stops.<sup>49</sup> Another health concern at composting facilities is exposure to endotoxins. Endotoxins are toxins produced within a microorganism and released upon the destruction of the cell in which it is produced. Like *Aspergillus fumigatus*, these bacteria are found everywhere in the natural environment. They then can be carried by airborne dust particles.

Several documents have been prepared which address health related effects of *Aspergillus* and bioaerosols in general from composting facilities. CIWMB LEA Advisory No. 6 provides guidance on *Aspergillus* and composting operations in California.<sup>122</sup> LEA Advisory No. 6 notes that *Aspergillus fumigatus* spores are very common in our everyday environment in North America and that everyday activities account for most of the exposures to this fungus. CIWMB concludes that a properly operated composting facility should not present a health risk from *Aspergillus fumigatus*. Sound management practices include maintaining moisture, temperature and pH levels, aerating, turning, and mixing. Reducing the dispersal of dust and spores best controls exposure. The use of water sprays or mists while turning piles, and refraining from turning on windy days will help accomplish this. Employees must be provided with appropriate personal protective equipment in accordance with OSHA regulations.

In 1999, the California Department of Health Services (DHS) prepared a report on bioaerosols and green-waste composting in California.<sup>123</sup> In reviewing previous studies, DHS noted a panel of international experts on bioaerosols, risk assessment and composting was recently assembled to consider whether bioaerosols associated with the operation of biosolids or solid waste composting facilities endanger the health and welfare of the public and the environment. Although this group also recognized that data regarding levels of bioaerosols exposure are incomplete, the group did not find epidemiological evidence to support increased risk of allergic, asthmatic or acute or chronic respiratory disease in the general public at or around the several open air and one enclosed composting sites that were evaluated. The major basis for this conclusion was the fact that workers were regarded as the most exposed part of the community and, where worker health was studied, no significant adverse health impacts were found.

Current CIWMB regulatory requirements do not recommend a minimum buffer zone width between composting operations and the nearest building or public use area. Previous state regulations required a minimum 300-foot buffer zone (for green waste composting facilities only) from active compost materials to any residence, school, or hospital. In the DHS study, buffer zone requirements in some selected U.S. states and Canadian provinces were summarized, as follows:

- Illinois: compost facilities must have at least 660 feet (1/8 mile) between the facility property line and the nearest residence.
- Tennessee: minimum 100 feet from compost to facility property lines, minimum 500 feet from compost to any residence, unless owners agree in writing to a shorter distance.
- Texas: minimum 50 feet from all property boundaries if greater than 2,000 CY is processed and if grinding occurs on site. No setback if grinding does not occur. No buffer distance required between facility property boundary and adjacent occupied spaces.
- Saskatchewan: minimum 1,640 feet between compost site and any sensitive neighboring land use.
- British Columbia: minimum 164 feet between composting operation and property boundary of which 50 feet closest to the property boundary must be reserved for natural or landscaped screening.

Most of these buffer distances were defined to address odors and aesthetics. By contrast, the WCCSL Composting Facility is centrally located within the 340-acre WCCSL site and is about 1 mile to the closest residence.

In summary, the DHS report concluded that studies to date that have evaluated the relationship between compost bioaerosol release, levels of bioaerosols off site and health effects in adjacent communities indicate:

- No increased risk for infection from exposure to *Aspergillus fumigatus* among healthy persons in the general population or the composting work force.
- Sensitive subpopulations including persons with compromised or suppressed immune systems may be at increased risk of infection by *Aspergillus fumigatus* from any source, not just composting.
- Asthmatics and those with allergic predisposition may be at increased risk for developing allergic reactions to one or several compost bioaerosols, as well as a variety of common ambient air components such as pollen and house dust.
- Compost worker exposure to bioaerosols may be high enough in some facilities to increase risk of some types of health problems. Previous studies of U.S. compost workers have not documented an increase in risk with occupational exposure, but limitations in the number and design of the studies make drawing firm conclusions difficult.

Because bioaerosols and endotoxins are both carried as dust, dust control measures will be incorporated into the design and operation of the facility.

#### **Control Measures Incorporated by Applicant:**

- a) Water would be applied at least twice daily, more often when windy, on internal roads for dust control purposes.
- b) Green waste, wood waste, and composting materials would be watered as unloaded.
- c) Green waste, wood waste, and composting materials would be pre-screened to avoid dusty materials.
- d) Water spray would be applied during the shredding process to wet the material being shredded.
- e) Water would be applied on the compost windrows and pathways prior to aeration (turning).
- f) Finished stabilized compost would be screened and loaded during low wind speed conditions (less than 20 mph); handling of compost would be suspended if the wind speed increases (above 20 mph).

- g) Heavy equipment would have enclosed cabs for operators, and other employees would be required to use dust masks as necessary.
- h) Uniforms are available to employees, and shower facilities would also be available in the proposed WRC so employees can shower and change clothes at the end of the day.
- i) Wind fences and berms would be strategically located in the Organics Materials Processing Area to reduce wind effects and control wind erosion.

The use of standard dust control measures as proposed would reduce the impact to a less-than-significant level.

#### **EIR Recommendations:**

**MITIGATION MEASURE 11-6:** None required.

**IMPACT 11-7. The proposed spraying or spreading of liquid biosolids (greater than 90 percent moisture) to the landfill sideslopes as well as the spreading of drier biosolids (less than 90 percent moisture) could impact WCCSL employees and users of the Trail. This impact is considered to be potentially significant.**

The Applicant's proposed biosolids/dredged material spreading includes spraying or spreading of high moisture content biosolids (greater than 90 percent moisture) obtained from the WCWD to the southern and eastern sideslopes of the Class II landfill. The biosolids are anaerobically digested wastewater (sewage) sludge. Drier biosolids (less than 90 percent moisture) from the WCWD lagoons could also be applied to all of the landfill final slope areas.

The biosolids are considered to be Class B under 40 CFR 503 regulations, which is not pathogen free. However, Class B biosolids do have adequate pathogen reduction requirements which, along with use of site restrictions to prevent human contact, would enable it to be used at certain sites.

The spray application of biosolids would produce bioaerosols. Potential receptors of the bioaerosols include WCCSL employees and customers, and users of the Trail. As can be seen from Figure 3-7, the alignment of portions of the Phase 1 and 2 Trail is near (about 500 feet) the proposed biosolids spray application area, near the southwestern corner of the Class II landfill. Additionally, the Phase 2 and 3 Trail segments would proceed through the western and northern landfill sideslope areas that will receive annual applications of biosolids, which is a continuation of an existing authorized practice to improve soil tilth and provide nutrients for plant growth. While some of the technical details of the proposed biosolids spreading program still need to be evaluated further by

the Applicant, the Applicant has acknowledged that public health protection is a prerequisite for this activity to be permitted and implemented.

**Control Measures Incorporated by Applicant:**

- a) Biosolids would not be placed in any area where the public can have contact with the materials. During biosolids application, sensitive portions of the Trail would be closed for a 4- to 6-week period and areas fenced off to prevent public access until the materials are disked into the soil surface of the landfill cover.
- b) Signs would be posted at the edge of biosolids application areas indicating boundaries of the area and warning unauthorized persons of the restricted access.
- c) Spray application of liquid biosolids of typically 2 to 6 percent solids would be conducted at the southwestern portion of the WCCSL site only under favorable wind conditions (e.g., less than 10 mph), when wind drift of bioaerosols to the Trail is not likely.
- d) Spray application of biosolids would be conducted in a downwind direction and applications would be adjusted to account for wind speeds and directions. Spraying would be suspended if necessary (wind speed in excess of 20 mph or wind blowing toward the Trail).
- e) Employees would be required to use protective clothing and instructed in proper biosolids handling procedures.
- f) Regular follow-up observations of working practices would be conducted by the Applicant and quarterly employee re-training would be required to ensure public health safeguards are met.
- g) An annual report would be prepared, under the review and oversight of the LEA, which summarizes the health protection procedures that were followed, any problems, and corrective measures that were or need to be taken.

**EIR Recommendations:**

**MITIGATION MEASURES 11-7:**

- a) WCCSL employees would have the necessary inoculations prior to their participation in the biosolids spreading program.
- b) The Applicant would demonstrate to the RWQCB that lagoon storage of biosolids at the WCWD produces Class A biosolids, pursuant to 40 CFR 503 regulations. This demonstration shall include, but is not limited, to the following:

- A work plan would be prepared which defines the pathogen and related testing that will be completed on the biosolids. The work plan would be reviewed by the RWQCB and the EPA Region 9 Sludge Coordinator before beginning work.
  - Upon approval of the work plan, pathogen testing work would be completed on digested sludge and sludge withdrawn from the storage lagoon to determine if Class A pathogen densities have been achieved.
  - Lagoon operational parameters would be defined during this testing work that would then be used in the future to help define the conditions under which Class A material is produced – conditions such as length of time within lagoon storage, feeding limitations, etc.
- c) Lacking such a demonstration in EIR Mitigation Measure 11-7(b) above, the Applicant would demonstrate to the RWQCB that a combination of Trail closure, rotational biosolids spreading, and fencing can be used to provide the necessary site restrictions to conform to 40 CFR 503 regulations and provide the necessary public health protection. The demonstration shall include, but is not limited to, the following:
- Identify set-back distances/restrictions from the Trail and any other public-accessible area/locations.
  - Define fencing, signing, and related features that will be adequate to prevent public access to areas of biosolids application under certain site conditions.
  - Define other restrictions such as area closure during and after spreading/application, closure for certain periods of time or time of day, closure during rain, fog, or other situations.
- d) The Applicant would demonstrate to the RWQCB compliance with the vector attraction reduction requirements of 40 CFR 503 regulations. It is assumed Option 1 (Table 11-4) would be appropriate and involves demonstrating that the mass of volatile solids (VS) in the biosolids is reduced by a minimum of 38 percent during biosolids treatment. The minimum of 38 percent VS reduction in the treatment system can be demonstrated with either of the two following methods:
- **Direct Calculations.** The VS concentrations in its influent and effluent biosolids samples will be monitored. Influent samples would be the 24-hour composite sample paced with the influent flow rates. Effluent samples could be daily grab samples. The mass of VS reduction can be calculated directly from the flow and VS concentration data.



- **Sludge Production.** The VS reduction is proportionate to the sludge production. From the biochemical oxygen demand and total suspended solids concentrations and flow rate in the influent and effluent samples, the sludge production rate can be calculated and the reduction of VS mass can be verified.

Implementation of these measures would reduce public health and safety impacts associated with land application of biosolids to a less-than-significant level.

## 8. Chemical and Biological Quality of Biosolids and Compost

**IMPACT 11-8. Biosolids and dredged materials can contain elevated levels of organic chemicals, which can make the land application or composting of these materials potentially harmful to public health and safety and the environment. This impact is considered to be less than significant.**

Discussion earlier in this chapter (see Section B7) indicated that 40 CFR 503 regulations require biosolids to be non-hazardous for land application. Both Federal and State regulations consider biosolids to be hazardous if they exhibit any one of the four characteristics: ignitability, corrosivity, reactivity, and toxicity. The most critical criterion for biosolids is toxicity as measured against standards for a variety of organic chemicals. The pollutant content of WCWD biosolids is considered low as discussed in Impact 11-9 below. Similarly, it is expected that the biosolids would be non-hazardous, but no data are available to support this assumption at this time. Sources of biosolids other than WCWD could also be secured by the Applicant.

Dredged materials from San Francisco Bay could also contain elevated pollutant levels. However, according to the Corps of Engineers and the Port of Oakland, the “hot spots” within the Bay are well known and the vast majority of dredged material from the Bay is relatively clean material from maintenance dredging operations.<sup>119,120</sup> The actual dredging operation is subject to the Corps permitting process with some level of material characterization, either from actual testing or through use of data from previous dredging operations in the area. This level of screening is required to ensure that dredged material is of suitable quality for its intended disposal location.

At the WCCSL, the receipt and application of biosolids and dredged materials would be regulated by RWQCB Order No. R2-2002-0066 and by the Applicant’s Waste Acceptance Guidelines. Order No. R2-2002-0066 would consider these materials to be non-hazardous pursuant to Federal and State criteria, and the materials managed to prevent water quality impacts. The Applicant’s Waste Acceptance Guidelines are included in Appendix 3I and detail the level of characterization required prior to receipt of various waste materials.

**Control Measures Incorporated by Applicant:**

- a) Prior to accepting biosolids from WCWD or other sources, or dredged materials, the Applicant would enforce WCCSL's Waste Acceptance Guidelines and require the project sponsor to provide sufficient chemical characterization data that would enable the Applicant to demonstrate to the RWQCB that the material is non-hazardous pursuant to 40 CFR Part 261 and 22 CCR, Division 4.5, Chapter 11, Article 3.

Compliance with WCCSL's Waste Acceptance Guidelines and demonstrating to the RWQCB that biosolids and dredged materials are non-hazardous would reduce potential impacts to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-8:** None required.

**IMPACT 11-9. Biosolids can contain elevated levels of pollutants which can make land application of this material potentially harmful to public health and safety and the environment. This impact is considered to be less than significant.**

Discussion earlier in this chapter summarized 40 CFR 503 regulations and 14 CCR §17868.2 standards for pollutant limits and biosolid characterization tests under 22 CCR. The standards for ten heavy metals are included in Table 11-5 and compared with available data for WCWD wet and dry sludge. Because the WCWD data are below regulatory limits, biosolids from the facility can be land applied without annual or cumulative loading restrictions. However, if biosolids from sources other than WCWD are secured, the quality of the sludge would be unknown.

**Control Measures Incorporated by Applicant:**

- a) Prior to accepting biosolids from sources other than WCWD, the Applicant would enforce WCCSL's Waste Acceptance Guidelines and require the entity to provide documentation (including test results) that the biosolids meet pollutant limits included in 40 CFR 503 and 14 CCR §17868.2 regulations, and testing standards under 22 CCR.

Compliance with WCCSL's Waste Acceptance Guidelines and requiring documentation that regulatory standards will be met would reduce this impact related to pollutants to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-9:** None required.

**Table 11-5. Comparison of WCWD Biosolids Chemical Quality  
With Regulatory Standards**

Pollutant	503.13 Table 1 ceiling concentration (mg/kg) <sup>a</sup>	503.13 Table 3 pollutant concentration (mg/kg) <sup>a,b,c</sup>	WCWD <sup>a</sup>	
			Lagoon dried sludge (mg/kg)	Lagoon wet sludge (mg/kg)
Arsenic	75	41	16	4.6
Cadmium	85	39	2.25	1.5
Chromium	3,000	1,200	42	5.35
Copper	4,300	1,500	280	45.5
Lead	840	300	65.5	3.2
Mercury	57	17	1.45	0.04
Molybdenum	75	N/A <sup>d</sup>	5.85	0.4
Nickel	420	420	49	7.5
Selenium	100	36	ND	12.7
Zinc	7,500	2,800	475	189

a. Dry weight basis, values are averages for 2001 and 2002 data.

b. Except for molybdenum, values are also maximum pollutant concentrations for compost included in 14 CCR §17868.2.

c. These pollutant concentrations correspond to maximum acceptable pollutant concentrations for compost included in 27 CCR §17868.2.

d. Temporarily suspended by EPA pending further consideration. Value was 18 mg/kg.

Source: 40 CFR 503 and WCWD.

**IMPACT 11-10. Elevated pathogen and pollutant levels in the finished compost product could make its use harmful to public health and safety and the environment. This impact is considered to be less than significant.**

Incoming compost feedstock materials could contain trace levels of chemical and biological contaminants. Through the composting process, microorganisms decompose the composting feedstock into simpler compounds. At the end of the curing process, the compost is considered “stabilized” or “mature.” An efficient composting process requires careful monitoring and control of the windrow process to assure adequate turning, temperature, moisture and carbon-to-nitrogen ratios. While pollutant levels would be dependent on the quality of the feedstock, as discussed above, the quality and suitability of the finished product are dependent on the completeness of the composting process.

Discussion earlier in this chapter summarized the regulatory standards for the control of the chemical and biological quality of the finished compost product. Standards exist for operation, maximum metal concentrations, pathogen reduction, and sampling. 40 CFR Part 503 regulations recognizes the windrow composting process as a Class A pathogen reduction method for biosolids if the temperature of the biosolids is maintained at 131 degrees Fahrenheit (55 degrees Celsius) or higher for 15 days or longer and there is a minimum of five turnings of the windrow during that period as required by 14 CCR §17868.3. The finished compost would then be considered pathogen free. If regulatory standards for temperature and turning are not met, then the compost shall be designated for disposal, processed further, or otherwise managed as approved by appropriate Federal and State agencies.

**Control Measures Incorporated by Applicant:**

- a) The Applicant would comply with Federal and State regulatory standards for compost operation, pollutant concentrations, pathogen reduction, monitoring, recordkeeping, and reporting.

Compliance with Federal and State regulatory standards would reduce health and safety impacts associated with finished compost quality to a less-than-significant level.

**EIR Recommendations:**

**MITIGATION MEASURE 11-10:** None required.

**IMPACT 11-11. Green wastes can contain the plant pathogen *Phytophthora ramorum*, the causative agent of Sudden Oak Death. The Composting Facility and the Wood Waste Recovery Facility could facilitate the spread of this pathogen. This impact is considered to be potentially significant.**

Sudden Oak Death is an oak-killing disease first discovered in California in 1995. In California, Sudden Oak Death has been reported from Sonoma Valley in the north to Big Sur in the south, a 190-mile range, as well as east to the Napa County border, about 25 miles inland. In October 2001, Alameda County became the tenth California county to be infested with the pathogen.<sup>50</sup> Contra Costa County is one of 12 counties in the State that were quarantined by the Federal government on February 14, 2002, thus regulating the interstate movement of regulated or restricted articles.<sup>56</sup> Quarantined counties include the following:

Humboldt	Solano
Mendocino	Alameda
Sonoma	Santa Clara
Napa	San Mateo
Marin	Santa Cruz
Contra Costa	Monterey

Research on Sudden Oak Death and the regulatory framework for composting facilities continues to evolve. The CIWMB is helping to sponsor a research project at the University of California at Berkeley to verify that composting is effective at destroying this pathogen. In 2003, a new revised Federal interim rule and revised California rule are expected to be issued to address composting and accepting potentially contaminated wood waste. Under the anticipated regulatory environment, requirements will differ for existing permit holders, such as the Applicant, depending on whether or not finished products are transported out of the quarantined area, as follows:<sup>92</sup>

1. If materials such as compost or mulch stay within the quarantined area, no restrictions would apply.
2. If materials are transported out of the quarantined area, then the following would apply:
  - Finished compost could be beneficially used, but the Applicant would need to execute a Compliance Agreement with the respective County Agricultural Commissioner, as the agent of the California Department of Food and Agriculture, which would contain certain specified conditions.
  - Wood waste such as mulch which has not undergone the composting process could only go to a specific permitted facility. The Applicant, as well as the transporter, would be required to execute compliance agreements with the respective Agricultural Commissioner.

**Control Measures Incorporated by Applicant:** None.

**EIR Recommendations:****MITIGATION MEASURE 11-11:**

- a) The Applicant would comply with new revised Federal rule and revised California rule regarding composting and control of *Phytophthora ramorum*, expected some time in 2003. If finished compost or mulch are transported out of the quarantined area, a Compliance Agreement would be executed with the County Agricultural Commissioner at the required time and specified conditions therein would be followed.

Implementation of this measure would reduce this impact related to Sudden Oak Death to a less-than-significant level.

**9. Vectors and Nuisance Pests**

**IMPACT 11-12. Expansion of the incoming waste stream along with increased site recycling and solid waste disposal activities could lead to increased presence of vectors and nuisance pests which could be harmful to public health and safety. This impact is considered to be less than significant.**

The Project does involve expansion of existing activities and waste streams as well as certain new activities which could be attractive to vectors and nuisance pests. However, vectors and nuisance pests have not been a problem at the WCCSL, according to the LEA. Pursuant to the SWFP and Composting Facility Permit for the WCCSL, the LEA would continue to regularly inspect operations. If problems are identified, corrective measures would be enforced.

Many of the conditions that could lead to proliferation of vectors and nuisance pests are addressed elsewhere in this EIR in the context of drainage management and odor control. Regrading the operations area of the Composting Facility (Chapter 6 Section D) would facilitate drainage and it would eliminate areas of standing water that could be breeding areas for mosquitoes. Compaction and daily cover of waste at the landfill's working face provides odor control and is effective at vector and nuisance pest abatement. Employment of good operational and housekeeping practices at the WRC and Composting Facility would be effective at odor control (Chapter 10 Section D) but also eliminates conditions that could lead to vector and nuisance pest problems.

The main new proposed composting feedstock that could attract vectors and pests would be food wastes. As discussed in Chapter 10 Section D, these materials would be incorporated with other compostible materials, shredded materials, or compost which should substantially reduce their attraction potential. A mitigation measure is also recommended in Chapter 10 Section D (EIR Mitigation Measure 10.5(b)) for a 1-year

composting demonstration project which would, in part, address control measures for vectors and nuisance pests associated with composting food wastes.

**Control Measures Incorporated by Applicant:** None.

**EIR Recommendations:**

**MITIGATION MEASURE 11-12:** None required.

## **10. Impacts of Mitigation Measures**

The mitigation measures discussed in this section are beneficial in nature and are intended to reduce potentially significant adverse impacts to less-than-significant levels. Implementation of these mitigation measures would not result in any significant adverse impacts.

## **E. CUMULATIVE IMPACTS**

Discussion of Project impacts and mitigation measures in Section D addressed general health and safety issues associated with the Project as well as a series of specific issues associated with individual Project activities. For some Project activities, less than significant impacts were identified when either Applicant control measures or recommended mitigation measures would reduce impacts to less-than-significant levels. In the context of the total Project site, specific control and mitigation measures, which include a combination of continued use of health and safety programs of the Applicant; Federal, State, and local regulatory requirements; and EIR recommendations, would serve to reduce potential cumulative impacts to less-than-significant levels.

In the context of cumulative projects in the area, the expanded operation of the Central IRRF would share some of the same health and safety issues associated with the proposed Project because of similar solid waste handling and resource recovery operations. These issues include general health and safety issues, spills, fire hazards, and vectors and nuisance pests. However, both the proposed Project and expanded Central IRRF would be regulated similarly with permit conditions that reduce project-related as well as cumulative impacts to less-than-significant levels.